

**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

After "This application" on line 6 of page 1, insert  
-- is a divisional of U. S. patent application number  
09/870,967 filed on May 31, 2001, patented U. S. Patent Number  
6,621,611, which -- .

2. The following is an examiner's statement of reasons for allowance: claims are allowable at least the reason that the prior art does not teach or reasonably suggest the step of grounding the given electrode and energizing an electrode immediately adjacent the given electrode such that the element deflects onto the perimeter's linear segment/ the baseplate along the linear segment corresponding to the electrode immediately adjacent the given electrode as set forth in the claimed combination.

Karidis discloses a MEMS using electrodes that energized so as to function as a switch (see figures 1-3), but does not include the step of grounding the given electrode and energizing

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an electrode immediately adjacent the given electrode such that the element deflects onto the perimeter's linear segment/ the baseplate along the linear segment corresponding to the electrode immediately adjacent the given electrode.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

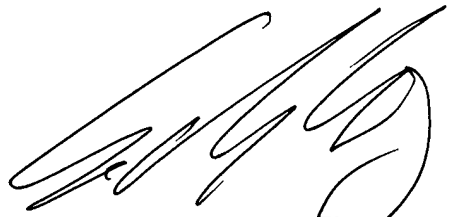
#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EUNCHA P. CHERRY whose telephone number is 571-272-2310. The examiner can normally be reached on M-F 6:30-4:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DREW DUNN can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**EUNCHA P. CHERRY**  
**PRIMARY EXAMINER**

# SNAP-DOWN PIVOTING OPTICAL ELEMENT

Roman C. Gutierrez and Tony K. Tang

## 5. Related Application

This application *is a division of U.S. Patent application number 09/870,867 filed on May 31, 2001, patented U.S. Patent Number 6,621,611, which* claims the benefit of U.S. Provisional Application No.

60/208,050, filed May 31, 2000, the contents of which are incorporated by reference

herein.

## Field of Invention

- 10           The invention relates generally to optics, and more particularly to a pivoting element for optical applications.

## Background

- Optical switches have numerous applications for optical networks in areas such as cross-connects. Micro-electro-mechanical system (MEMS) optical mirrors have been
- 15   developed for use in such switches. MEMS devices are fabricated using photolithographic techniques similar to those developed for mass production of semiconductor integrated circuits. Through successive deposition of, for example, polysilicon and oxide layers onto a substrate in conjunction with masking and etching steps, a designer may form MEMS devices of myriad shapes and sizes.

- 20           In a conventional MEMS optical switch, as seen for example in U.S. Pat. No. 6,044,705, electrostatic forces are used to pivot a suspended mirror in a desired direction. In this manner, the mirror may direct light beams at a desired angle. For accurate optical switching, however, the mirror should be pivoted very precisely so that the desired